Before the

Federal Communications Commission

Washington, D.C. 20554

In the Matter of	)	
	)	
The Establishment of Policies	)	IB Docket No. 99-81
and Service Rules for the Mobile	)	RM-9328
Satellite Service in the 2 GHz Band	)	

REPLY COMMENTS OF INMARSAT LTD.

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Summary

Inmarsat continues to believes that the best way to implement MSS in the 2 GHz band in a flexible and efficient manner, thereby promoting the greatest possible range of service offerings to the public, is through the adoption by the Commission of policies and rules that contain the following three elements:

- A flexible spectrum plan;
- A spectrum sharing proposal that harmonizes with 2 GHz MSS decisions already adopted in other parts of the world; and
- Post-authorization modification of spectrum assignments by means of periodic operators' review of the actual and projected spectrum needs of each operator.

Although there are some differences with respect to details, there is a high degree of support for these positions among the parties to this proceeding. Inmarsat urges the Commission to reject the suggestions of some parties that would impose unworkable conditions on MSS operators. With respect to international coordination issues, Inmarsat believes that the most expedient way for the Commission to ensure satisfactory global coordination of U.S. systems is through the assignment of spectrum in a manner which harmonizes with other such allotments around the world. Inmarsat continues to encourage the Commission to work in close cooperation with other administrations. However, Inmarsat opposes those parties who would hold hostage the U.S. MSS license of a foreign operator in an attempt to manipulate the spectrum assignment decisions of foreign administrations.

Inmarsat believes that many of the issues relating to feeder link earth station operations can best be resolved in coordination meetings between MSS operators and licensees of the affected services in other bands. To this end, Inmarsat generally opposes

the suggestions of some fixed service parties who seek inflexible blanket interference and coordination restrictions for MSS feeder link earth stations.

Finally, Inmarsat reiterates its position, supported by many other commenters, that the Commission should neither provide for AMS(R)S service in the 2 GHz band, nor should it impose E911 requirements on MSS operators at this time.

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To: The Commission

REPLY COMMENTS OF INMARSAT LTD.

Inmarsat Ltd. ("Inmarsat"), by counsel and pursuant to Section 1.415 of the Commission's Rules, hereby submits its reply comments in response to the Commission's Notice of Proposed Rulemaking in the above-captioned matter.[1] Inmarsat addresses herein a number of issues and arguments raised by other parties to this proceeding.

I. Processing Alternatives

In its original comments, Inmarsat proposed a modified version of the Commission's flexible band plan arrangement that would assure each applicant of a sufficient amount of spectrum for initial operations and establish a structure for subsequent assignments of expansion band or forfeited spectrum based on demonstrated need. Inmarsat's chief innovations were the designation of core and expansion spectrum bands which more closely coincide with those already established in other regions and the use of frequent industry meetings as a mechanism for assignment of additional spectrum.

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[1] *Notice of Proposed Rulemaking*, IB Docket No. 99-81, RM-9328, FCC 99-50 (released March 25, 1999)("NPRM"). The original comment date in this proceeding was June 24, 1999.

Almost half of the operator parties supported the flexible band arrangement,[2] with several commenters offering their own plans for distribution of expansion band or forfeited spectrum.[3] Those operators who did not support this approach generally split their support among various other of the Commission's spectrum assignment options.[4] While these parties each claimed that their own proposals would best serve the Commission's goals, none would do so as well or in such an integrated manner as would Inmarsat's.

A. Initial Spectrum Allotment Plans

1. Flexible Band Plan

Although numerous applicants joined Inmarsat in supporting the flexible band plan, a few other parties attacked this approach.[5] At this point, the Commission's goal must be to give each system adequate start up spectrum while maintaining the flexibility to assign additional spectrum as and where the industry advances and demand develops. The division of the spectrum into core and expansion bands ensures that each system will have access to at least 2.5 MHz of spectrum for initial operations. With respect to future growth, the fact remains that no system will know how much *additional* spectrum it will *need* until it has commenced operations. The flexible band approach is the only one which provides a combination of initial certainty and future flexibility.

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[2] Comments of Mobile Communications Holdings, Inc. ("MCHI"); Comments of Celsat America, Inc. ("Celsat"); Comments of TMI Communications & Company LP ("TMI").
[3] MCHI at 8; Celsat at 9.
[4] Iridium LLC ("Iridium"), Boeing Company ("Boeing") and Constellation Communications ("Constellation") supported the traditional band plan. ICO Services Ltd. ("ICO") and the ICO USA Service Group ("ICO USA") supported the negotiated entry approach. None of the proposed operators favored the use of competitive bidding, although this proposal was supported by Bell South Corporation ("Bell South"). Globalstar LP ("Globalstar") proposed its own "all shared" band plan.
[5] *See, e.g.*, Globalstar at 16 (flexible band approach would cause too much uncertainty).

2. Traditional Band Plan

Some operators favor the traditional band plan or a variation of this plan. Iridium, for example, argues that the traditional approach is the best way to grant applications of all qualified systems in a way that can be implemented globally.[6] Boeing adds that the use of a traditional approach would greatly facilitate international spectrum coordination by giving U.S. licensees a model that can be pursued in other countries.[7]

While the traditional band approach has the superficial attraction of settling all domestic assignment questions up front, Inmarsat continues to object to it on the basis of its complete lack of flexibility in the global context. It is clear that international frequency coordination will be a challenging task. However, a rigid assignment plan leaves no room whatsoever for the interests of other administrations or for compromise between them. By adopting such a plan, the Commission in fact could undermine seriously any possibility of achieving a successful international sharing arrangement. On the other hand, the flexible approach, with the modifications proposed by Inmarsat, is able to take into account the needs of other administrations and to work with them.

While Boeing is correct in recognizing the international impact of the Commission's actions, the same argument applies to the flexible plan proposed by Inmarsat. Furthermore, the inflexibility of the traditional plan, which hampers its utility in international coordination, also makes it an inferior model for other administrations to emulate.

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[6] Iridium at 16.
[7] Boeing at 21.

3. Globalstar's "All Shared Band" Proposal

Globalstar has proposed an "all shared band" plan in place of the alternatives proposed by the Commission.[8] It claims that this arrangement would provide a variety of benefits at a level superior to any of the other proposals. However, it is not at all clear how such an "innovative" plan provides any advantage in relation to the flexible band arrangement supported by Inmarsat. Indeed, a step by step analysis of the benefits alleged by Globalstar demonstrates that its proposal actually would thwart the very policy goals it claims to support.

i. Globalstar claims its plan provides the certainty that each licensee has access to 35 MHz of spectrum in each direction and ensure that each system can use the entire spectrum to the maximum capability.[9]

This claim is based on the assumption that all applicants will be able to design (or redesign) their systems to share with any other system. But it is far from clear that any such assumption is warranted. For example, while Globalstar suggests that TDMA systems may well be able to share spectrum with other TDMA and CDMA systems, ITU studies have concluded exactly the opposite.[10] To base the processing approach on an unproved conclusion will have disastrous effect, particularly for the TDMA proponents such as Inmarsat. Further, even if some form of sharing between TDMA systems were possible (for example through dynamic channel allocation schemes), the advantages of such schemes would be greatly outweighed by the disadvantage of imposing design constraints on the system operators, thus thwarting a primary Commission goal of promoting innovation and diversity in MSS system designs.

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[8] Globalstar at 9 *et seq.*
[9] Globalstar at 11.
[10] See CPM Report to the 1997 World Radiocommunication Conference (WRC-97) at Section 4.2.1.1.1.

Even if all-system sharing were theoretically feasible, the assertion that all systems would have access to 35 MHz of the MSS band is clearly misleading. It is technically impossible that several (let alone nine) MSS systems could share spectrum and each use that spectrum to the full capacity. While sharing studies to date have shown that CDMA systems are able to share spectrum, these studies also show that a CDMA system sharing spectrum with other CDMA systems has to accept a loss of capacity in proportion to the number of systems that share.[11] Thus, even if all nine systems could share the full 35 MHz, this would be unlikely to provide any more capacity to each than would a more structured approach.

To the extent that there may be advantages to intersystem frequency sharing, market and technology considerations should determine when such arrangements can be applied beneficially. The Commission's flexible band approach would allow such sharing in cases where the *system proponents* agree that sharing is beneficial.

ii. Globalstar claims its proposal discourages delays since it increases the complexity of coordination for latecomers.[12]

Since this approach is based on intersystem coordination, Inmarsat believes that in the very unlikely event that an initial sharing arrangement were reached among the first parties ready for operations, entrance of additional latecomers would prove to be very complex. In this respect, Globalstar's proposal is no different from the negotiated entry approach which Globalstar itself has rejected in the belief that there would be no incentive for incumbents to negotiate.[13]

[11] *See* European Radiocommunication Committee Report on Co-Frequency Co-Coverage Sharing Issues Between Two CDMA Systems, Bucharest, December 1997.
[12] Globalstar at 12.

iii. Globalstar claims its plan will not lead to idle spectrum segments as a result of a system not going forward.[14]

This goal can be achieved by means far less disruptive than proposed by Globalstar. First, the flexible band plan proposed by the Commission allows the interim use of the primary spectrum segment reserved to a not yet operational system by other operational systems through coordination.[15] Furthermore, Inmarsat's own proposal would allow for expeditious distribution of expansion band or forfeited spectrum to those systems that could demonstrate a need for it. Also, Inmarsat believes that none of the proposed systems has any interest in allowing spectrum to lie fallow. Therefore, assuming an equitable distribution mechanism is put in place, this may be less of a concern than envisioned by Globalstar.

iv. Globalstar claims its plan provides more flexibility for global systems to obtain spectrum from other administrations.[16]

This would only be true if the arrangement could actually be implemented which, as explained above, is highly doubtful.

v. Globalstar claims its plan achieves the Commission's goal of licensing all systems.[17]

The flexible band plan also achieves this goal, but with none of the disadvantages discussed herein.

In order to implement its assignment plan, Globalstar also proposes that all proponents be required to modify their system designs to enable sharing.[18] As noted,

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[13] *Id.* at 18.
[14] *Id* at 11.
[15] NPRM at ¶22.
[16] Globalstar at 12.
[17] *Id.* at 11.
[18] *Id.* at 11. Globalstar also states that since some terrestrial IMT-2000 radio interfaces have a carrier bandwidth of 5 MHz, 2 GHz MSS systems that wish to be compatible with IMT-2000 must be assigned spectrum segments of at least that size. Apart from the fact that there are some terrestrial IMT-2000 interfaces with bandwidths less than 5 MHz, the bandwidth of the terrestrial component interfaces should not be the main concern for a potential satellite IMT-2000 provider. Such a provider must first comply with the satellite radio interfaces developed by ITU-R Task Group 8/1. Of the six satellite

this would be a truly monumental undertaking, as it essentially would require the adoption of the CDMA transmission standard by all applicants. Technical and economic complexities aside, Globalstar's proposal runs exactly contrary to the stated policy of the Commission "to afford service providers the ability to use a diverse array of technologies."[19] Inmarsat strongly agrees with the Commission's belief that "allowing satellite operators maximum flexibility to design their satellite systems would promote innovative system design and create additional public interest benefits by allowing operators to tailor their systems to best meet the needs of consumers."[20] The requirements of Globalstar's proposal leave no room for such innovation.

In short, it would appear that Globalstar's proposal has more to do with tailoring systems to meet Globalstar's needs rather than promoting a diversity of technical innovations and consumer options. Thus, it should be rejected by the Commission.

B. Expansion Bands

Contrary to the objections of some parties,[21] designation of expansion bands will not make spectrum more scarce. Rather it will ensure that this resource is made available only to operators who demonstrate that they actually require it. Inmarsat believes this to be the most effective way to use the spectrum.

Of those parties who generally support the flexible band approach, several offer suggestions regarding when and how a party should be permitted to gain access to the expansion bands.

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radio interfaces contained therein, several are specified with carrier bandwidth less than 5 MHz and one is as narrow as 25 kHz.

[19] NPRM at ¶16.

[20] *Id.*

[21] *See, e.g.*, Iridium at 21; Globalstar at 15.

MCHI proposes a two-part test prior to assigning the applicant an expansion band channel.[22] Such applicant would be required to demonstrate a uniform minimum level of traffic per channel currently assigned and also to certify that customer demand for its services exceeds the capacity of both the primary channels assigned to it and the available unused channels in the applicant's core spectrum bands. Inmarsat believes that this proposal generally represents the right approach towards spectrum needs review. In fact, this is precisely the type of consideration that would be suitable for the review process proposed by Inmarsat. However, issues may exist with respect to its specific applicability to the different types of systems being proposed. Such issues may need more time for consideration than is available in this proceeding. Therefore adoption of a specific threshold test for access to expansion spectrum should not be mandated at this point.

Celsat proposes its own expansion mechanism consisting of four points.[23] Under its proposal, no expansion spectrum would be permanently assigned to any operator earlier than three years after all 2 GHz MSS systems are licensed. At the same time, the Commission would be committed to begin awarding expansion spectrum to qualified operators on a date no later than four years after their systems are licensed.

Again, given the uncertain schedule of system development, Inmarsat believes that imposition of specific timetables for assignment of expansion spectrum may not allow the Commission the flexibility to respond to market developments as they arise. As stated in its original comments, Inmarsat believes the Commission must adopt procedures which take into account such developments to the greatest possible extent

[22] MCHI at 8.
[23] Celsat at 9-10.

and which accommodate systems that have a genuine need for more spectrum at such time as their needs become manifest. Therefore, it is Inmarsat's view that the Commission should not tie itself to any particular timeframe during which it can make such spectrum available.

C. Reallotment of Forfeited Spectrum

The parties generally agree that strict implementation milestones should be maintained by the Commission, and that in the event a party is unable to meet its construction and launch requirements, its spectrum should be forfeited and redistributed among the other 2 GHz operators.[24] However, Inmarsat objects to Iridium's proposal that in the event an applicant is unable to bring its system to market and forfeits its license, the spectrum identified for that system should revert back to the designated core spectrum for that type of system.[25] The Commission's initial spectrum distribution is designed to apportion spectrum out to the various system types equitably. However, it is not designed to guarantee perpetually even distribution once market forces take over. When additional spectrum becomes available through forfeit, the Commission should not choke off access to that spectrum by a system with demonstrable demand merely on the basis of that system's design. As proposed by Inmarsat, a more equitable solution is to return the spectrum to a common pool for later re-assignment to the remaining systems.

D. GSO and NGSO Orbital Considerations

Some parties support the Commission's proposal that GSO systems should be assigned frequencies in the portion of the 2 GHz band available only in Region 2.[26] While Inmarsat has already stated its concerns regarding this proposal, it wishes to

[24] *See, e.g.*, Constellation at 21; ICO at 18.
[25] Iridium at 18.

reiterate that although this approach may be appropriate with respect to the coverage area of a *single* GSO satellite (as proposed by TMI and Celsat), this approach does not take into account the needs of GSO systems providing *global* service such as Inmarsat's. Application of this spectrum constraint could very well lead to incompatibility problems between Inmarsat and NGSO systems in Regions 1 and 3. Therefore, the Commission must look to the service area of each system, whether regional or global, in order to properly identify issues of compatibility and determine the appropriate spectrum assignment.

II. International Issues

A. Coordination

1. Global MSS Spectrum Harmonization

As an initial matter, Inmarsat is of the view that the instant proceeding should focus on adopting appropriate rules for 2 GHz MSS and not address other MSS bands. While Iridium seems to support this view in general,[27] it nonetheless urges the Commission "to initiate a formal process with the EC, CEPT and other appropriate authorities to ensure that all MSS providers have equitable access to spectrum and to consider in such process other unused or under-utilised MSS spectrum in lower L-band."[28] As Inmarsat previously has stated emphatically, Iridium's proposal for a "universal band plan" is inappropriate, particularly with respect to the L-band spectrum. In light of the different circumstances that apply to the various MSS

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[26] Iridium at 11; Constellation at 8.

[27] "The instant proceeding focuses on licensing the next generation of MSS in the US at 2 GHz and, as the Notice reveals, that relatively narrow scope nevertheless presents a score of difficult technical, regulatory, trade, and competition-related matters to be addressed without reaching to embrace issues not directly germane to 2 GHz MSS licensing." Iridium at 36.

[28] Iridium at 60. Far from being "unused or under-utilized," the L-band is heavily used and is reaching saturation in many parts of the world. The United States is perhaps the main exception to this situation, since currently only one L-band MSS system is authorized to provide service to the U.S. market.

allocations between 1 and 3 GHz, Inmarsat's view is that each MSS band should be considered separately.

While Inmarsat supports the promotion of internationally compatible band plans, it does not agree with either the proposal of Boeing to condition the 2 GHz MSS authorizations on the participation of each operator in an international sharing scheme,[29] or the proposal of MCHI to condition each authorization on the operator's efforts to cause foreign administrations to harmonize their 2 GHz band plans in accordance with those established in this proceeding.[30] First, Inmarsat is concerned that the concept of acceptable participation may be difficult to define and impossible to implement equitably. Second, despite the best efforts and co-operation of all operators participating in this processing round, an internationally agreed sharing arrangement could take significant time to complete due to a variety of reasons outside the control or influence of the operators. Third, the Commission simply cannot wait for the completion of a global band plan before deciding to authorise 2 GHz MSS systems domestically. Finally, Inmarsat believes conditions such as those proposed by Boeing and MCHI are unnecessary since all the global 2 GHz MSS operator have a strong incentive to actively seek globally compatible band plans anyway. If they are unable to do so, their systems will not be able to provide global service. Thus, there is simply no need for the provision proposed by Boeing and MCHI.

Inmarsat believes that administrations should harmonize their band plans to the maximum extent possible.[31] However, the FCC need not bear by itself the burden

[29] Boeing at 34.
[30] MCHI at 15.
[31] Inmarsat notes the success of the band plan adopted by the Commission for the 1.6/2.4 GHz MSS bands. The CEPT in turn adopted a compatible band plan for Europe in ERC Decision ERC/DEC/(97)03.

of achieving harmonization. Instead, the Commission should keep in mind that the ERC already has adopted a band plan for the 2 GHz MSS band. Inmarsat believes the Commission has an excellent opportunity through this proceeding to promote a global band plan by adopting decisions that are compatible with the ERC Decision, as contained in the band plan proposed by Inmarsat. While several parties are concerned regarding their access to the European market, the Commission should note that adoption of the plan proposed by Inmarsat would not rule out further discussions with the CEPT to ensure that those systems not already identified in the ERC Decision get equitable spectrum access in Europe.

2. ITU Coordination Obligations

MCHI also urges the Commission to require that the LOI filers (Inmarsat, ICO and TMI) complete by a date certain the international coordination necessary for the applicants to satisfy the coverage requirements proposed by the Commission.[32] Failure to do so would result in monetary fine or revocation of license. MCHI bases this proposal on the fact that the Commission will not perform international coordination at the ITU on behalf of these entities.

This is an unreasonable requirement. First, MCHI's proposal would place on the foreign licensees the responsibility of ensuring completion of a process over which such licensees have no control. Second, given that domestic licensees do not suffer monetary forfeiture or license revocation based on the FCC's international coordination efforts on their behalf, MCHI's proposal raises serious questions regarding national treatment under the United States' GATS obligations. In addition, MCHI's proposal is unnecessary. It is in the best interest of each licensee to seek the

[32] MCHI at 21. MCHI mistakenly characterizes Inmarsat's and TMI's proposals as NGSO systems, thus subjecting them to more extensive coverage requirements than GSO systems.

earliest possible coordination of its system by the appropriate administrations in order to begin provision of service. MCHI has presented no justification whatsoever for the presumption that foreign licensees would have any less reason to pursue such a goal.

B. Trafficking

Iridium suggests that particular restrictions should be placed on Inmarsat and ICO to prohibit the transfer of spectrum between these two applicants unless the Commission first determines that (1) all global MSS systems not affiliated in ownership with Inmarsat or ICO have been able to obtain equitable access to spectrum and markets in every country in which ICO and Inmarsat have such access and (2) such a transfer is in the public interest.[33]

Inmarsat believes the provisions proposed by Iridium are unnecessary and unjustified. First, to the extent Iridium is concerned with access to foreign markets in which Inmarsat or ICO may have a presence, Inmarsat believes the Commission's proposed prohibition of exclusionary arrangements – applicable to all service providers equally – are more than sufficient to prevent unfair efforts to block other parties' access. Second, with respect to "equitable" access to spectrum, Iridium offers no justification for singling out Inmarsat or ICO for exclusive licensing conditions based on factors over which they have no control, namely, the award of spectrum by foreign administrations. Thus, the Commission should reject Iridium's proposed conditions.

III. Interference Issues

A number of parties raised concerns in their comments regarding interference among MSS systems as well as interference to other adjacent or cochannel services caused by their out of band emissions.

A. Pfd limits

Celsat proposes that instead of specifying guard bands between the 2 GHz MSS systems, the Commission should adopt pfd limits for emission falling anywhere in another system's allocated band.[34] However, the interference caused by one MSS system to another and the acceptable interference pfd are highly dependent on the actual designs of the involved systems, including satellite characteristics and terminal types. Inmarsat therefore believes it would be more appropriate to resolve adjacent band interference issues on a bilateral basis.

The Wireless Communications Association International, Inc. ("WCA") proposes a specific pfd limit of -154 dBW/m^2/4 kHz in the band 2150-2162 MHz to protect MDS stations.[35] In general, Inmarsat believes that it is inappropriate to adopt pfd limit for bands other than the operational band at this time. Further, while any specific pfd limits adopted to protect MDS systems must take into account the particular geometry of the interference scenario, the same kinds of calculations would have to be made to protect other discrete services as well.[36] The resulting proliferation of rules to protect each specific band would result in an unmanageable body of provisions. Rather than this, Inmarsat believes out-of-band interference

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[33] Iridium at 52.
[34] Celsat at 12. Celsat proposes a limit of -120.5 dBm/m^2/4 kHz.
[35] WCA at 13.
[36] From the discussion in WCA's comments, it appears that the pfd limits proposed have been derived based on a main beam interference scenario. Inmarsat believes that the acceptable pfd would depend on the arrival angle of the interference, with higher pfd's being acceptable at higher arrival angles.

should be controlled through generic unwanted emission limits, except in very special cases such as the protection of safety services.

B. Unwanted emission limits

The National Telecommunications and Information Administration ("NTIA") proposes a wide band unwanted emission limit of -70 dBW/MHz and a narrow band limit of -80 dBW in the band 1559-1626.5 MHz in order to provide protection to GNSS operations.[37] As discussed in Inmarsat's recent comments in the proceeding implementing the GMPCS Memorandum of Understanding,[38] Inmarsat supports the protection of GNSS and generally accepts the limits proposed for the GNSS operational band. However, NTIA has provided no justification for adopting the same limits in the band 1610-1626.5 MHz, which is otherwise outside the scope of this proceeding.[39] Inmarsat believes that the Commission should limit the consideration of GNSS protection to its operational bands and would therefore suggest that the Commission apply the proposed limits only to the frequency range 1559-1610 MHz.

IV. Feeder links issues

SBC Communications ("SBC") and Century OCN Programming Inc. ("Century") suggest that the Commission reconsider its proposal to allow Inmarsat to share the 6425-6575 MHz band.[40] The Society of Broadcast Engineers ("SBE") further notes that there could be conflict with existing TV BAS allocation.[41] Inmarsat understands that there will be extensive usage of these bands for a variety of terrestrial

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[37] NTIA at 12.
[38] Comments of Inmarsat Ltd., IB Docket No. 99-67, June 21, 1999; Reply Comments of Inmarsat Ltd., July 20, 1999 ("Inmarsat GMPCS Comments").
[39] While these limits appear in Recommendation M.1343 and an ETSI standard, Inmarsat notes that NTIA has not proposed to adopt the full specification of Recommendation M.1343 or the ETSI standard.
[40] SBC at 1; Century at 1.

applications. However, since the Inmarsat system proposes to use a very small number of feeder link stations world-wide, it is planning for a maximum of only two such stations within the United States. Therefore it certainly will be feasible to find an appropriate location, with proper shielding if necessary, to operate the earth stations without the risk of mutual interference.[42]

The Fixed Wireless Communications Coalition ("FWCC") suggests that the Commission should constrain the deployment and design of MSS feeder link earth stations through a variety of mandatory measures regarding their number, size and location.[43] While Inmarsat believes many of these suggestions can be employed successfully in order to promote greater spectrum efficiency, this is a matter more proper to coordination discussions between the parties involved on a case-by-case basis.

FWCC's further suggestion that the Commission impose spectrum efficiency standards on MSS operators equivalent to those placed on fixed service systems[44] does not make any sense. Fixed systems obviously provide a very different service from MSS systems, employing very different technology. As a result, a direct comparison of efficiency simply is not appropriate. In any case, there is no need to impose efficiency standards on the MSS since all MSS operators are very much aware of the scarcity of the spectrum and it is in their inherent interest to be as spectrally efficient as technically feasible.

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[41] SBE at 2.

[42] In this regard, Inmarsat's planned use of feeder link earth stations also would be compatible with the proposal of the Association of American Railroads ("AAR") to limit the number of earth stations to six per MSS system. AAR at 4-5.

[43] FWCC at 4-5.

[44] *Id.*

FWCC also suggests that the Commission impose a number of spectrum reservation and coordination rules biased to the fixed service.[45] These proposals would have the effect of warehousing spectrum for future fixed service use and limiting the scope of MSS operators' coordination negotiation options by forcing them to grant exactly the same level of protection to all fixed service operators. As such, these suggestions are unrealistic. As all parties agree that spectrum is a scarce resource, the warehousing of spectrum for uncertain future usage through regulatory fiat simply cannot be justified. The needs of both services should be met through good faith coordination discussions. Further, imposition of coordination handicaps on MSS operators would be counterproductive as well, as such rules would discourage earth station operators from making any effort to accommodate additional interference in the interest of resolving coordination difficulties. In short, the Commission should not accept the suggestions made by the FWCC.

V. Provision of AMS(R)S

In its comments, Inmarsat urged the Commission not to take any special steps to allow for Boeing's request to provide AMS(R)S service in the 2 GHz band. In particular, Inmarsat was concerned that any special priority or preemption protection of AMS(R)S could affect the already scarce spectrum available for MSS use. Moreover, studies carried out in the ITU-R to date indicate that the L-band MSS allocations are sufficient to meet those requirements for AMS(R)S for the foreseeable future.

Boeing claims that it will be able to coordinate its operations with other

[45] *Id.* at 6-7.

satellite systems without priority provided through regulatory footnotes or through an exclusive allocation.[46] Boeing also concludes that inter-system prioritization and pre-emption is not required to allow it to provide AMS(R)S.[47] On the other hand, Aeronautical Radio, Inc. ("ARINC") believes that changes in the current ITU table of allocations *are* necessary in order to provide AMS(R)S in the 2 GHz MSS bands.[48] First, ARINC claims that, at a minimum, priority and pre-emption would be necessary for AMS(R)S to be provided at 2 GHz.[49] More importantly, ARINC proposes an exclusive domestic and international AMS(R)S allocation in the 2 GHz MSS bands, as aviation users are unlikely to transfer their communications to a new service in the 2 GHz MSS bands without assurance that their needs will be met in those bands.[50]

Given the availability of protected AMS(R)S spectrum in the L-band and the difference of opinion among those parties most interested regarding the level of protection such service might require in the 2 GHz band, Inmarsat reiterates its position that the Commission should take no special steps to accommodate Boeing at this time. To the extent that Boeing can provide its service in the 2 GHz band without such protection, Inmarsat of course has no objection to such service.

VI. Coverage requirements

In the NPRM, the Commission proposed requiring a 2 GHz MSS system employing GSO satellites to provide continuous 50 state service "*if* technically feasible."[51] Constellation suggests that GSO-only 2 GHz MSS systems should be

[46] Boeing at 5.
[47] *Id.* at 6.
[48] ARINC at 3.
[49] *Id.*
[50] *Id.*
[51] *See* Proposed Rule Section 25.143(b)(2)(iv), NPRM at Appendix D.

designed to provide continuous 50 state service "*unless* technically *infeasible*." [52] While Constellation calls this a "clarification" of the Commission's proposal, in fact it represents a far more stringent standard than that proposed by the Commission, as it would appear to impose mandatory redesign requirements.

The Commission's policy is to allow operators the maximum flexibility in designing their systems to cater to the needs of consumers. As the only proposed global GSO system, Inmarsat will have to balance a number of technical considerations with respect to its satellite deployment. These factors must be taken into account by the Commission in determining whether Inmarsat's coverage footprint is sufficient. Constellation's proposal would seem to take away from the flexibility of both Inmarsat's design options and the Commission's review standard, and should be rejected.

VII. E-911

The United States Coast Guard ("USCG"), Bell South, Celsat and the NTIA all support making E-911 mandatory for 2 GHz MSS systems.[53] On the other hand, the majority of the MSS proponents note the technical difficulties of implementing these capabilities at this stage.[54]

As stated in its GMPCS comments, Inmarsat agrees that emergency services are extremely important and would support actions by the FCC to encourage 2 GHz MSS operators to provide those services. However, by making E-911 capabilities mandatory, the FCC may in fact limit the options for people in emergency situations. A telephone is the first recourse to a traveller in an emergency. To stop the traveller

[52] Constellation at 3.
[53] USCG at 4; Bell South at 8; Celsat at 28; NTIA at 16.

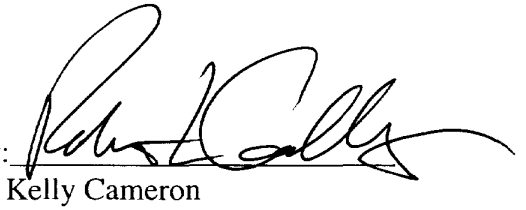
from carrying a phone because it does not include a particular feature would deny him the basic ability to communicate if in distress. In other words, a mobile phone without E-911 is vastly superior to no phone at all in an emergency. Inmarsat therefore agrees with the comments of ICO, Iridium, Motorola, Globalstar, etc. that it is premature to make E-911 mandatory at this time.

VIII. Conclusion

Although the parties to this proceeding differ with respect to details, there is a high degree of support for the positions Inmarsat stated in its initial comments. In particular, this includes the adoption of rules and technical standards that will promote the development of the MSS industry. Thus, for the reasons stated herein, Inmarsat again urges the Commission to adopt 2 GHz MSS service rules that conform with the comments previously submitted by Inmarsat in this proceeding.

Respectfully submitted,

INMARSAT LTD.



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July 26, 1999

[54] *See, e.g.*, ICO at 19; Globalstar at 41; Iridium at 38.

CERTIFICATE OF SERVICE

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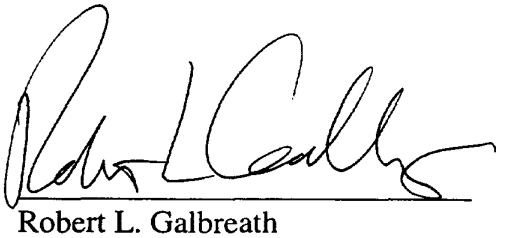

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